CASE REPORT

Tuberculosis presenting as a 'swollen calf'

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Accepted 7 November 2016

SUMMARY

We report the case of an 83-year-old man who presented with swelling of his left lower leg. Subsequent investigations revealed that the swelling was due to a *Mycobacterium tuberculosis* abscess in the tibialis anterior muscle.

BACKGROUND

The incidence of tuberculosis (TB) steadily rose in the UK from the mid-1980s for two decades. Only in the last few years has it started to fall once more. In 2014, there were 6250 new cases in the UK. Seventy-two per cent of these cases were found among people born outside the UK. In 2014, the incidence among the UK born population was 3.9 per 100 000.¹ Tuberculous involvement of skeletal muscle is rare with an occurrence of 1–2% of all cases of TB.² We could find no previous report in the literature of a new diagnosis of TB being made following presentation with isolated swelling of the calf.

CASE PRESENTATION

An 83-year-old UK born Caucasian man presented to his general practitioner (GP) with an insidious onset of pain and swelling of his left lower leg.

His medical history included Addison's disease (from the age of 26) and recently diagnosed Paget's disease.

His mother had died of TB when he was 2-year-old. He had no personal history of TB, and no other TB contact following the death of his mother. Specifically he never had any symptoms suggestive of pulmonary TB and had never travelled to an endemic area.

On examination, the only abnormal finding was of asymmetric swelling and tenderness of the left lower leg. His GP organised an ultrasound scan to investigate for the possibility of a deep vein thrombosis.

INVESTIGATIONS

Unexpectedly, the ultrasound identified a 20 cm×3 cm lobulated soft tissue mass in the anterior compartment of the lower leg. He went on to have plain film radiographs (figures 1 and 2), an MRI scan (figure 3) and a CT scan (figure 4). His imaging was discussed with the regional sarcoma unit who advised an open incisional biopsy. This revealed a sensitive *Mycobacterium tuberculosis*.

He went on to have a chest X-ray which revealed right upper lobe fibrotic changes consistent with healing tuberculosis (figure 5).

Figure 1 AP plain film radiograph of lower leg on first presentation.

Figure 2 Lateral plain film radiograph of lower leg on first presentation.

DIFFERENTIAL DIAGNOSIS

On initial presentation, many differential diagnoses were considered including a deep vein thrombosis or a ruptured Baker's cyst.

TREATMENT

He was started on rifampicin and isoniazid. He was given combination therapy of Rifinah 300/150 starting once a day and then doubling to twice a day for a duration of 6 months. A week later, he was started on pyrazinamide. The initial dose was 500 mg daily. This was increased every day by a

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To cite: Kotecha D, Sardar M, Latimer MD. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2016-216340

Figure 3 T1 weighted axial MRI of lower leg on first presentation.

Figure 4 Axial CT scan of lower leg on first presentation.

further 500 mg until he was on a dose of 2 g daily. This was also continued for 4 months. He was not treated with ethambutol.

OUTCOME AND FOLLOW-UP

He tolerated antituberculous therapy well with no significant clinical or biochemical side effects. He went on to complete his full 6-month course. The swelling and pain in his lower leg resolved, and he resumed full physical activity including golf.

Five years later, the pain and swelling suddenly recurred. He was admitted with fevers and raised inflammatory markers. His plain film radiographs were essentially unchanged from 5 years previously (figures 6 and 7). A repeat MRI showed an apparent pyogenic abscess in close association to the old calcified TB abscess (figure 8). He remained systemically unwell despite empirical intravenous antibiotics, and a decision was taken to incise and drain the apparent new abscess and to excise the old

Figure 5 Chest X-ray (demonstrating right upper lobe fibrotic changes due to healing tuberculosis).

Figure 6 AP plain film radiograph of lower leg on second presentation.

Figure 7 Lateral plain film radiograph of lower leg on second presentation.

Figure 8 T1 weighted axial MRI of lower leg on second presentation.

calcified TB abscess. Intraoperatively, the old TB abscess was found to have completely replaced the tibialis anterior muscle. There was no muscle remaining (figures 9 and 10). The structure was avascular and extended into the proximal part of the tibialis anterior tendon. The wound was left open, and a vacuum dressing was applied. The patient's systemic symptoms rapidly resolved, and he was taken back to theatre at 2 days later for delayed primary closure of the surgical incision. Microbiology confirmed a bacterial superinfection of *Bacteroides fragilis*. There was no longer any microbiological or histological evidence of latent TB.

He went on to make a complete recovery with no apparent functional deficit despite an absent tibialis anterior muscle. Postoperative plain films show only a few tiny residual flakes of calcification (figures 11 and 12).

Figure 9 Preoperative photograph (demonstrating superinfection with *Bacteroides fragilis*).

Figure 10 Intraoperative photograph (demonstrating calcified mass replacing tibialis anterior muscle).

Figure 11 Postoperative AP plain film radiograph of lower leg.

Figure 12 Postoperative lateral plain film radiograph of lower leg.

DISCUSSION

TB is often described as a great mimic because of its occasional habit of presenting with the characteristic signs and symptoms of other pathological conditions. There are a multitude of examples in the medical literature of this mimicry.³ This is an example of TB presenting with a 'swollen calf' mimicking some of the features of a deep vein thrombosis.

TB is a notoriously difficult and slow bacterium to culture. If you suspect TB in a patient requiring surgical biopsy, then

discuss acquiring, storing and transporting of samples with your microbiology laboratory before taking the patient to theatre.

Traditionally cultures have used the Löwenstein-Jensen media. Culture from this may take 4–8 weeks for a conclusive answer.⁴ Alternative techniques such as the microscopic observation drug susceptibility assay culture may be a faster and more accurate method to reach a diagnosis.⁵

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Contributors The patient was under the care of MDL. He suggested the case report. The report was largely written by DK and MS. It was then edited by MDL.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

Learning points

- ▶ Tuberculosis (TB) is a rare diagnosis in the UK among the UK born population.
- ▶ It is even rarer for TB to present as a primary myositis.
- ▶ TB has the potential to reactivate many decades after the original inoculation.
- ▶ TB has the potential to mimic many other more common disease processes.
- ▶ To avoid missing TB culture every biopsy, biopsy every culture!

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